



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,313	09/11/2003	Michael Goldstein	Intel 10559-869001 / P173	5451
20985	7590	07/26/2005	EXAMINER	
FISH & RICHARDSON, PC 12390 EL CAMINO REAL SAN DIEGO, CA 92130-2081			TUROCY, DAVID P	
			ART UNIT	PAPER NUMBER
			1762	

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/665,313

Applicant(s)

GOLDSTEIN, MICHAEL

Examiner

David Turocy

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 23 June 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 18-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-6, 8, 9, 11 and 12 is/are allowed.
- 6) ☒ Claim(s) 7 and 18-20 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The applicant's amendments, filed 6/23/05/ have been fully considered and reviewed by the examiner. The examiner notes the amendment to claim 1 to include the indicated allowable subject matter of claim 10. In addition, the examiner notes the cancellation of non-elected claims 13-17 and the addition of new claims 18-20. Claims 1-12 and 18-20 are pending.

Response to Arguments

2. Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

3. Claim 10 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitations of claim 10 were inserted into independent claim 1 without the subsequent cancellation of the claim.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

Art Unit: 1762

art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 20 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation of a "CO₂ coating onto the pellicle" appears to be new matter. The examiner cannot locate in the disclosure, including the paragraph noted for support by the applicant, support for the limitation where the pellicle is placed on the reticle and then a "CO₂ coating onto the pellicle".

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 7 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claim 1 includes the limitation that the reticle with a sold carbon dioxide is sprayed inside the lithography tool and therefore it is unclear how, in claim 7, the reticle can be inserted into the lithography tool.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6444984 by Lundgren et al., hereafter Lundgren in view of US Patent 6619903 by Friedman et al., hereafter Friedman and further in view of Applied Surface Technologies.

Lundgren discloses spraying carbon dioxide snow onto the surface of a transmissive substrate to form a solid carbon dioxide layer on the surface, which is cooled below the sublimation temperature of the carbon dioxide prior to forming the layer (abstract, Column 6, lines 58-63). The carbon dioxide coating as taught by Lundgren inherently prevents particles from contacting the surface. Lundgren discloses the substrate is in a carrier maintained at a temperature below the sublimation temperature of carbon dioxide (Column 6, lines 58-63). Lundgren discloses applying the carbon dioxide coating within the tool used to direct radiation. Lundgren discloses

Art Unit: 1762

raising the temperature around the substrate above the carbon dioxide sublimation temperature to remove the coating from the substrate (Column 7, lines 35-40).

Lundgren fails to disclose applying the carbon dioxide film to a reticle. However, Friedman discloses transmissive substrates, such as reticles, are often used in lithography tools (Column 1, lines 18-21). Friedman discloses reticles, which are within an enclosure, are transported in a carrier and then inserted within the lithography tool (Column 2, lines 23-44).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lundgren to use a transmissive reticle within a lithography tool as suggested by Friedman to provide a desirable carbon dioxide coating on a substrate because Lundgren discloses applying a solid carbon dioxide film onto the surface of a transmissive substrate and Friedman discloses reticles, which are used in lithography tools, are known transmissive substrate.

Lundgren in view of Friedman discloses all the limitations of these claims as discussed above, but fails to disclose spraying the reticle with carbon dioxide snow to remove particles from the surface.

However, Applied Surface Technologies discloses cleaning glass and optical surfaces to remove contamination before applying a coating to the surface (Glass and Optics, paragraph 1). Applied Surface Technologies also discloses spraying carbon dioxide, including a gas stream, for either initial cleaning or final cleaning (Page 1). Applied Surface Technologies discloses aiming the carbon dioxide snow nozzle at an

Art Unit: 1762

angle so that the contamination removed does not land on the cleaned area (Cleaning Issues, Methods).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lundgren in view of Friedman to use the carbon dioxide snow cleaning before coating and after removal of coating as suggested by Applied Surface Technology to provide a desirable optical substrate because Applied Surface Technology discloses spraying carbon dioxide snow, a carrier gas, on a surface is known in the art to remove contamination from optical substrates prior to coating as well as final cleaning and therefore would reasonably be expected to effectively provide a reticle with a contaminant free surface.

8. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6387602 by Hayden et al, hereafter Hayden in view of US Patent Publication 2004/0185682 by Foulke et al., hereafter Foulke.

Hayden discloses a method for cleaning the surface of the reticle inside a lithography tool (Column 2, lines 30-45). Hayden discloses providing a coating station within the lithography tool to eliminate the necessity to maintain a clean room (Column 2, lines 30-45).

Hayden fails to disclose cleaning the reticle by spraying carbon dioxide.

Art Unit: 1762

However, Foulke, teaching a method for cleaning reticles, discloses using a clean stream of carbon dioxide to remove any particles on the surface of the reticle (paragraph 0032).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Hayden to use the carbon dioxide spray cleaning as suggested by Foulke to provide a desirable cleaning of a reticle because Foulke discloses carbon dioxide spray is known in the art to provide removal of particles and/or contamination from the reticle and therefore would reasonably be expected to effectively provide cleaning within the lithography tool.

9. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6444984 by Lundgren et al., hereafter Lundgren in view of US Patent 6619903 by Friedman et al., hereafter Friedman and further in view of Foulke.

Lundgren in view of Friedman teach all the limitations of these claims as discussed in the 35 USC 103(a) rejection to claim 17, however, they fail to disclose placing a pellicle over the reticle.

However, Foulke discloses including a pellicle onto a reticle, where the pellicle is a transparent membrane for keeping particles away from the surface and the chrome image (paragraph 0002). Foulke discloses process steps including placing the pellicle over the reticle and removing the pellicle from the reticle (Paragraph 007, 0024).

Art Unit: 1762

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lundgren in view of Friedman to use the pellicle as suggested by Foulke to provide a desirable protection from particles to reap the benefits of a reticle with protection against particle contamination.

Allowable Subject Matter

10. Claims 1-6, 8-9, and 11-12 are allowed.

11. The following is a statement of reasons for the indication of allowable subject matter: These claims are indicated allowable for the same reasons set forth in the office action dated 4/21/2005.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


Art Unit: 1762

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Turocy whose telephone number is (571) 272-2940. The examiner can normally be reached on Monday-Friday 8:30-6:00, No 2nd Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Turocy
AU 1762



TIMOTHY MEEKS
SUPERVISORY PATENT EXAMINER